

What is claimed is:

1. A hydrodynamic bearing system comprising:
a shaft;
a bearing sleeve;
at least one bearing member mounted on an outer surface of said shaft; and
a fluid trap member,
wherein said fluid trap member is integrated into said at least one bearing member and wherein a fluid trapping cavity is formed between said fluid trap member and a surface of said at least one bearing member.
2. The hydrodynamic bearing system according to Claim 1, wherein said fluid trap member is injection molded from a material having low surface tension.
3. The hydrodynamic bearing system according to Claim 2, wherein said material is fluorocarbon.
4. The hydrodynamic bearing system according to Claim 1, wherein said fluid trap member is machined from a material having low surface tension.
5. The hydrodynamic bearing system according to Claim 4, wherein said material is fluorocarbon.

6. The hydrodynamic bearing system according to Claim 1, wherein said at least one bearing member is a conical bearing member.

7. The hydrodynamic bearing system according to Claim 1, wherein said fluid trap member comprises a sleeve portion and a disc portion, said sleeve portion being pressed into said at least one bearing member.

8. The hydrodynamic bearing system according to Claim 1 further comprising a shield enclosing an opening in said bearing sleeve, said shield comprising a pair of oil fill holes.

9. The hydrodynamic bearing system according to Claim 8, wherein said fluid trap member further comprises a pair of springs, said pair of springs being axially aligned with said pair of oil fill holes.

10. A spindle motor having a hydrodynamic bearing system, said hydrodynamic bearing system comprising:

a shaft;

a bearing sleeve;

at least one bearing member mounted on an outer surface of said shaft; and

a fluid trap member,

wherein said fluid trap member is integrated into said at least one bearing member and wherein a fluid trapping cavity is formed between said fluid trap member and a surface of said at least one bearing member.

11. The spindle motor according to Claim 10, wherein said fluid trap member is injection molded from a material having low surface tension.

12. The hydrodynamic bearing system according to Claim 11, wherein said material is fluorocarbon.

13. The spindle motor according to Claim 10, wherein said fluid trap member is machined from a material having low surface tension.

14. The hydrodynamic bearing system according to Claim 13, wherein said material is fluorocarbon.

15. The spindle motor according to Claim 10, wherein said at least one bearing member is a conical bearing member.

16. The spindle motor according to Claim 10, wherein said fluid trap member comprises a sleeve portion and a disc portion, said sleeve portion being pressed into said at least one bearing member.

17. The spindle motor according to Claim 10 further comprising a shield enclosing an opening in said bearing sleeve, said shield comprising a pair of oil fill holes.

18. The spindle motor according to Claim 17, wherein said fluid trap member further comprises a pair of sparings, said pair of sparings being axially aligned with said pair of oil fill holes.

19. A hydrodynamic bearing system, comprising:
a shaft;
a bearing sleeve; and
a bearing member,
wherein said bearing member further comprises a fluid trapping portion, said fluid trapping portion extending from a surface of said bearing member and forming a fluid trapping cavity with said surface, and wherein said fluid trapping portion comprises a coating of a low surface tension material.

20. The hydrodynamic bearing system according to Claim 19, wherein said low surface tension material is fluorocarbon.

21. The hydrodynamic bearing system according to Claim 19, wherein said at least one bearing member is a conical bearing member.

22. The hydrodynamic bearing system according to Claim 19 further comprising a shield enclosing an opening in said bearing sleeve, said shield comprising a pair of oil fill holes.

23. A spindle motor having a hydrodynamic bearing system, said hydrodynamic bearing system comprising:

a shaft;

a bearing sleeve; and

a bearing member,

wherein said bearing member further comprises a fluid trapping portion, said fluid trapping portion extending from a surface of said bearing member and forming a fluid trapping cavity with said surface, and wherein said fluid trapping portion comprises a coating of a low surface tension material.

24. The spindle motor according to Claim 23, wherein said low surface tension material is fluorocarbon.

25. The spindle motor according to Claim 23, wherein said at least one bearing member is a conical bearing member.

26. The spindle motor according to Claim 23 further comprising a shield enclosing an opening in said bearing sleeve, said shield comprising a pair of oil fill holes.

27. The hydrodynamic bearing system according to Claim 26, wherein said fluid trap portion further comprises a pair of sparings, said pair of sparings being axially aligned with said pair of oil fill holes.